

## Claims

- [c1] 1. A feed system for a rotary coating atomizer which comprises two opposed, identical atomizer assemblies, each further comprising a disk-shaped atomizer plate having a cylindrical flange affixed at the perimeter of the plate, the two atomizer assemblies coaxially aligned and disposed in proximity to each other, the feed system comprising:
- (a) a hollow distributor disposed coaxially between the atomizer assemblies and having one or more distributor feed holes formed in each opposing side of the distributor in proximity to the adjacent atomizer assembly; and
  - (b) a hollow axle passing coaxially through the distributor and the atomizer assemblies, the axle having one or more axle feed holes formed therein beneath the distributor,
- so that when the coating is fed through the hollow axle it enters the distributor through the axle feed holes and exits the distributor through the distributor feed holes onto the atomizer assemblies.
- [c2] 2. A feed system for a rotary coating atomizer which comprises a multiplicity of opposed atomizer assem-

blies, each further comprising a disk-shaped atomizer plate having a cylindrical flange affixed at the perimeter of the plate, each atomizer assembly having a common diameter and coaxially aligned and disposed so that each atomizer assembly is in proximity to one or more adjacent atomizer assemblies, the feed system comprising: (c) a hollow distributor disposed coaxially between each adjacent atomizer assembly, each distributor having one or more distributor feed holes formed in each opposing side of the distributor in proximity to the adjacent atomizer assembly; and (d) a hollow axle passing coaxially through all the distributors and the atomizer assemblies, the axle having one or more axle feed holes formed therein beneath each distributor, so that when the coating is fed through the hollow axle it enters the distributors through the axle feed holes and exits the distributors through the distributor feed holes onto the adjacent atomizer assemblies.

[c3]

### 3. A rotary coating atomizer comprising

(a) a multiplicity of opposed atomizer assemblies, each further comprising a disk-shaped atomizer plate having a cylindrical flange affixed at the perimeter of the plate, each atomizer assembly having a common diameter and coaxially aligned and disposed so that each atomizer as-

sembly is in proximity to one or more adjacent atomizer assembly,

(b) a hollow distributor disposed coaxially between each adjacent atomizer assembly, each distributor having one or more distributor feed holes formed in each opposing side of the distributor in proximity to the adjacent atomizer assembly; and

(e) a hollow axle passing coaxially through all the distributors and the atomizer assemblies, the axle having one or more axle feed holes formed therein beneath each distributor,

so that when the coating is fed through the hollow axle it enters the distributors through the axle feed holes and exits the distributors through the distributor feed holes onto the adjacent atomizer assemblies.

[c4] 4. The apparatus of claims 1, 2 or 3, wherein the atomizer assemblies, the hollow axle, and the distributors are constrained to rotate together.

[c5] 5. The apparatus of claim 4, further comprising  
(a) a motor coupled to the hollow axle; and  
(b) a sealed, fluid-tight means to allow the coating to pass from a stationary feed pipe into the rotating hollow axle.

[c6] 6. The apparatus of claim 5, wherein each distributor is

substantially cylindrical, and further comprising means to maintain each end of the distributor at a distance from the adjacent atomizer assembly.

- [c7] 7. The apparatus of claim 6, wherein the means to maintain each end of the distributor at a distance from the adjacent atomizer assembly further comprises an annular lip affixed to each end of each distributor.
- [c8] 8. The apparatus of claim 7, wherein the means of constraining the atomizer assemblies, the hollow axle, and the distributors further comprises one or more collars clamped to the hollow axle, and a plurality of pins inserted into the distributor and the adjacent atomizer assemblies, and between each collar and each adjacent atomizer assembly.
- [c9] 9. A method for feeding a coating into an atomizer which comprises two opposed, identical atomizer assemblies, each further comprising a disk-shaped atomizer plate having a cylindrical flange affixed at the perimeter of the plate, the two atomizer assemblies coaxially aligned and disposed in proximity to each other, the method comprising:
- (f) disposing a hollow distributor coaxially between the atomizer assemblies, the distributor having one or more distributor feed holes formed in each opposing side of

the distributor in proximity to the adjacent atomizer assembly; and

(g) disposing a hollow axle to pass coaxially through the distributor and the atomizer assemblies, the axle having one or more axle feed holes formed therein beneath the distributor,

so that when the coating is fed through the hollow axle it enters the distributor through the axle feed holes and exits the distributor through the distributor feed holes onto the atomizer assemblies.

[c10] 10. A method for feeding coating into a rotary atomizer which comprises a multiplicity of opposed atomizer assemblies, each further comprising a disk-shaped atomizer plate having a cylindrical flange affixed at the perimeter of the plate, each atomizer assembly having a common diameter and coaxially aligned and disposed so that each atomizer assembly is in proximity to one or more adjacent atomizer assemblies, the method comprising:

(h) disposing a hollow distributor coaxially between each adjacent atomizer assembly, each distributor having one or more distributor feed holes formed in each opposing side of the distributor in proximity to the adjacent atomizer assembly; and

(i) disposing a hollow axle to pass coaxially through all

the distributors and all the atomizer assemblies, the axle having one or more axle feed holes formed therein beneath each distributor, so that when the coating is fed through the hollow axle it enters the distributors through the axle feed holes and exits the distributors through the distributor feed holes onto the adjacent atomizer assemblies.

- [c11] 11. The method of claims 9 or 10, wherein the atomizer assemblies, the hollow axle, and the distributors are constrained to rotate together.
- [c12] 12. The method of claim 11, further comprising
  - (c) disposing a motor coupled to the hollow axle;
  - (d) disposing a sealed, fluid-tight means to allow the coating to pass from a stationary feed pipe into the rotating hollow axle.
- [c13] 13. The method of claim 12, wherein each distributor is substantially cylindrical, and further comprising maintaining each end of the distributor at a distance from the adjacent atomizer assembly.
- [c14] 14. The method of claim 13, further comprising affixing an annular lip to each end of each distributor to maintain each end of each distributor at a distance from the adjacent atomizer assembly.

[c15] 15. The feed system of claim 14, further comprising clamping one or more collars onto the hollow axle, each in proximity to an atomizer assembly, and inserting a plurality of pins into each collar and into the adjacent atomizer assembly, and inserting a plurality of pins into each distributor and to the adjacent atomizer assembly.